

SYMONS'S MONTHLY METEOROLOGICAL MAGAZINE.

CCCLXXV.]

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THE FIRST DAILY WEATHER MAP.

IN our number for September, 1896, we gave a photographic reproduction of the first daily weather map ever published, and promised to give its history as soon as we had concluded our enquiries.

Perhaps it is rash even now to assume that these enquiries are complete, for completeness is rarely attainable, and the publication of this note may lead to some fresh facts being brought to our notice—if so, so much the better, and we will insert them in a subsequent number.

As far as we can trace the facts they are as follow :—

In 1849 the proprietors of the *Daily News* decided upon collecting and publishing daily reports of the direction and strength of the wind and of the state of the weather. The organization was entrusted to Mr. Glaisher, F.R.S., who received from the various companies a pass over nearly every railway in the country, which enabled him to fix the compass points and instruct the clerks at each station, and, either then or subsequently, to erect barometers at many of them, all, we believe, with the hearty co-operation of the Electric Telegraph Company, the cost being borne partly by Mr. Glaisher, partly by the *Daily News*. The issue of that journal for June 14th, 1849, contained the first fruits of this enterprise, in the shape of the earliest telegraphic Weather Report known to us.

During the subsequent two years the system was greatly developed ; the Electric Telegraph Company was incorporated in 1846, and by 1851 had erected about 2,000 miles of wire, and during the great Exhibition of 1851, Mr. (now Sir George) Grove, as Secretary of the Society of Arts, decided upon issuing the information, collected by the Electric Telegraph Company, in the form of the Daily Weather Map, the lithographic production of which was entrusted to Mr. Trelawny Saunders, F.R.G.S., the first of which, for August 8th, 1851, was the one reproduced by us last September from a set kindly presented to us by H.M. Royal Commissioners of the 1851 Exhibition.

It is noteworthy that now, 46 years afterwards, all the persons chiefly concerned have assisted us in thus placing on apparently indisputable record, the history of the First Daily Weather Map.

INDEX TO VOLS. I.-XXX. OF THE *MET. MAG.*

THANKS greatly to the help of an old observer, who will not let me mention his name, the very heavy labour of preparing the Index is ended, and proofs are to be ready on April 24th.

Probably no one who ever compiled an index was satisfied with it when it was done, and I am not contented with mine. I think that many additional entries of subjects should be made from the Reviews—and of course in many thousand entries there must be mistakes.

I have always received so much help from my correspondents, that it has occurred to me that perhaps a few would not mind reading some portions of the proof, and suggesting additions and corrections. It will be easy to have a few extra proofs, and I will gladly send a copy to anyone who volunteers promptly.

G. J. SYMONS.

SCIENTIFIC KITE WORK IN THE ARCTIC REGIONS.

In the *Met. Mag.* for August, 1896, Mr. Laurence Rotch directed attention to the use of Kites in Scotland, in 1749, by Dr. Wilson.

In the *Met. Mag.* for February, 1895, we mentioned that Admiral Back is reported to have used a Kite to ascertain the temperature of the upper air in the Arctic Regions in 1836-7.

We now add the record of another earlier experiment made during the winter 1822-23. It forms a foot note to the excellent article on "Meteorology" contributed to the *Encyclopedia Metropolitana*, by Dr. G. Harvey, F.R.S.

"We are only acquainted with a single experimental observation, made with a view of discovering the decrement of temperature in high latitudes. This experiment was performed by the Rev. George Fisher, and the intrepid navigator, Captain Sir Edward Parry, at the Island of Igloolik, in lat. $69^{\circ} 21' N.$, and long. $81^{\circ} 42' W.$,

"A paper kite was hoisted, to which was attached an excellent register thermometer, in a horizontal position. Its height above the level of the frozen sea, upon which the experiment was made, was determined by two observers in the same vertical plane, taking its altitude at the same time above the distant horizon; and thence its height was computed. The greatest height observed was 379 ft., at which it was nearly stationary for a quarter of an hour, although it had probably been more than 400 ft. above the sea. The experiment was made under very favourable circumstances, the kite being sent up and caught in coming down, without the slightest agitation. 'The indices,' says Mr. Fisher, 'had not altered their position in the slightest degree, and they would have indicated any variation of temperature, had it existed, to less than a quarter of a degree, Fahrenheit.' The temperature at the time was -24° Fahrenheit.

"Dr. Young, in alluding to this interesting experiment, remarks that the law of decrease of temperature must be supposed to be very different in the Arctic regions from that which prevails in more moderate latitudes. The inference, however, is by far too sweeping, resting as it does on a single experiment. We may hope, however, that time will make known more perfectly many of the Physical conditions of the Polar regions."—*Meteorology*, by G. Harvey, F.R.S. in the *Encyclopedia Metropolitana*, 1834, p. 73.

THE COLDEST COUNTRY IN THE WORLD.

IN the new bulletin of the Royal Geographical Society of Irkutsk, Professor Sergus Kovalik gives an interesting account of "Life in the Coldest Country in the World." It is that of Werchojansk, in Siberia (Lon. 133° 51' E., Lat. 67° 34' N.), where the lowest temperature of —90 deg. Fah. has been observed, and the mean of January is —48 deg. Fah. It is inhabited by about 10,500 persons of the Jakut and Lamat races. In a large part of the region, according to Prof. Kovalik, the air is so dry and the winds are so rare that the intensity of the cold cannot be fully realised. In the most distant parts of the East there are sometimes terrible storms, which are most fatal to life in their consequences. During the summer time the temperature occasionally rises to 86 deg. Fah. in the shade, while it freezes at night. The latter part of this season is often marked by copious rains and extensive inundations, which invariably lay waste a vast acreage of land, and prove to be a serious obstacle to the cultivation of the soil. Vegetation is very scanty. There are practically no trees, only wide, open meadows. The people hunt fur-bearing animals, fish, and raise cattle and reindeer. It requires about eight cows to support a family, four being milked in the summer and two in the winter. The cattle are very small in size, and are fed with hay in winter. Occasionally they are allowed to go out when there is the slightest break in the weather, but their teats are always carefully covered up with felt. Milk is the principal food. This is sometimes supplemented with hares, which are quite abundant, but not very relishable. The houses are constructed of wood, covered with clay, and as a rule consist of only one room, in which the people and animals live together. The upper and wealthier classes are better provided with lodging and food. As a race they are exceedingly courteous and very hospitable, and they are excessively punctilious concerning points of honour, such as the place at table and the proper place at festivals.—*Echo*.

We may supplement this by a few Werchojansk figures from Dr. Wild's *Temperatur-verhältnisse des Russischen Reiches* :—

	<i>Monthly Mean Temperature.</i>												
	Jan.	Feb.	Mar.	Apl.	May.	June.	July.	Aug.	Sep.	Oct.	Nov.	Dec.	Year.
1869	—56·4	—54·8	—29·4	6·8	31·3	56·1	59·7	53·4	36·1	7·0	—29·4	—46·8	2·8
1871	..	..	..	..	..	..	..	..	..	..	—47·6	—53·7	..
1872	—55·8	—51·2	—28·5	..	..	..	..	..	..	..	..	..	..
Mean	—56·1	—53·0	—28·9	6·8	31·3	56·1	59·7	53·4	36·1	7·0	—38·5	—50·3	2·0

Absolute Monthly Maxima.

—18·6	—8·5	2·8	41·4	55·8	84·2	84·0	86·2	53·4	36·5	—1·3	—8·0	86·2
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Absolute Monthly Minima.

—76·0	—79·4	—67·4	—25·2	—4·0	41·2	42·4	35·6	19·2	—29·9	—56·4	—81·8	—81·8
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In 1883 verified thermometers and a Stevenson screen were sent to this interesting station, and the mean temperatures from 1883 to 1887 were as follows :—

1883	..	..	..	..	..	..	..	..	..	..	—37·1	—59·4	..
1884	—64·5	—52·8	—43·2	2·7	31·1	51·3	..	..	..	..	..	—49·9	..
1885	—63·0	—50·8	—19·8	—1·7	28·0	48·4	60·1	43·5	29·1	—2·4	—47·6	—63·0	—3·3
1886	—64·1	—47·2	—37·3	4·5	27·7	37·9	..	..	..	—6·5	—36·0	—58·9	..
1887	—62·9	—54·4	—21·6	9·0	40·6	59·9	53·6	..	..	..	..	..	..
Mean	—63·6	—51·3	—30·5	3·6	31·8	49·3	56·8	43·5	29·1	—4·4	—40·2	—57·8	—2·7

Habituated to temperatures like these, the Lamats would find the winter climate of the North Pole quite mild.

ROYAL METEOROLOGICAL SOCIETY.

DIAMOND JUBILEE MEETING AND EXHIBITION.

AT the Ordinary Meeting held on Wednesday evening, March 17th, a lecture was delivered by Mr. G. J. Symons, F.R.S., on "Meteorological Observations in 1837 and 1897." It might be thought, he said, that by merely sorting out the meteorological instruments invented prior to 1837 we should at once have a statement of what were in use at that date, but that notion was quite wrong. For example, dry and wet bulb thermometers, used synchronously as a hygrometer, were employed by Professor Boeckmann, of Carlsruhe, in 1802; they were again used (probably reinvented) by the Rev. Mr. Gordon, of Kinfauns, Perth, in 1817; and after another 19 years were brought out as a novelty by Mr. J. A. Mason in 1836; yet Mr. Symons did not know of one single station at which a dry and wet bulb hygrometer was in regular use in 1837. Therefore, the mere dates of inventions were of no help in determining the usual equipment of a meteorological station in the first year of the Queen's reign. For more than half of the period with which the paper dealt, he had not merely been collecting records of rainfall for current years, but had been searching for old records, and thus he had gradually accumulated returns for bygone years, far more numerous than those known to any one living at that time, since in 1837 postage, printing, and intercourse generally were very different from what they are now. It occurred to him that a list of the observers at work in 1837 would bring to his mind many facts that otherwise he would not think of, and the further idea arose of tabulating the rainfall for that year. This table contained perfect records from 91 stations in England, 5 in Wales, 60 in Scotland, and in 5 Ireland, together, with incomplete returns from 19 other stations, in all 180. More than half of these were merely rainfall stations, at which no records of barometer, thermometer, hygrometer, or anemometer were made. Mr. Symons proceeded to describe the instruments which he knew to have been used by good, ordinary observers in 1837, and which could have been obtained at once by any one going to the shops of the opticians of the day. He then briefly enumerated the usual forms of instruments employed at the present time, detailing the equipment of ordinary meteorological stations. Lastly, he showed what he thought might in many respects be regarded as the essence of much that had gone before, and of the marvellous progress which had characterised the Victorian reign. Thanks to the help of Mr. Scott and Mr. Gaster, he was able to exhibit in the lantern a chart showing the state of the weather over Western Europe only an hour or two before the time of the lecture. We were, he said, so used to weather maps that they did not strike us as at all a marvel, but when we looked into details they really were startling. There were records for that day from the sunny Riviera, eastwards as far as Berlin, and northwards, not only up to the top of the Gulf of Bothnia, but actually up to Bodo, within

the Arctic circle. If that did not prove the existence of a widespread interest in meteorological work, excellent organization, and the wonderful development of human intercourse, he did not know how otherwise it could be demonstrated.

At the conclusion of the lecture, Mr. Birt Acres, by means of a cinematoscope, exhibited some photographic studies of clouds and waves.

OUR IMPRESSIONS OF THE EXHIBITION.

The Annual Exhibition of the Royal Meteorological Society—usually held in conjunction with the Ordinary Meeting in March—was this year, in commemoration of the sixtieth year of Her Majesty's reign, devoted to a display of the instruments in use by meteorologists in 1837 and 1897.

The instruments accredited to the earlier period comprised—

- 6 Barometers.
- 10 Thermometers.
- 9 Hygrometers.
- 3 Rain Gauges.
- 3 Anemometers.
- 1 Actinometer.

Several of these would probably be excluded if the rigid limitation adopted by Mr. Symons in his descriptive lecture had been adhered to, inasmuch as one or two were undoubtedly of more recent form and construction, while others—though invented before 1837—were not in general use at the time.

The most striking characteristic of the barometers is perhaps an absence of that precision now considered requisite. No. 6 in the catalogue being a good illustration of this.

“6. *Large Cistern Barometer*.—This instrument was made for the Meteorological Society of London in 1837 by Mr. R. C. Woods, and cost forty guineas. The proportion of the calibre of the tube to that of the cistern is as 1 : 50, a proportion which was considered sufficient to obviate the necessity for applying capacity corrections. The tube and cistern originally held 70 lbs. of mercury.”

On the other hand, Morland's diagonal, or open scale barometer, was obviously designed with a view to greater accuracy in reading. We have never heard of one of these in actual use, probably owing to modern patterns attaining the desired accuracy by other means.

The thermometers show little variation from modern forms, barring a general tendency to larger bulbs and bores and consequent sluggishness ; a notable exception being the Maximum, made by Prof. Phillips himself, with a bulb of quite modern smallness, but apparently with round bore and somewhat close scale.

Modern hygrometers again show little advance over those exhibited, if we assume that those dependent on a hygroscopic substance such as

catgut, swansquill, whalebone, vegetable fibre, &c., for their indications were little used for scientific records. Yet the hair hygrometer belonging to the same class is in very general use on the continent, and has, we think, been unjustly discredited in this country; for, in the recording form exhibited by Messrs. Richard Freres, it gives a beautiful trace, and is more reliable in frosty weather than are the dry and wet in the hands of the average observer.

Of dew-point hygrometers, Daniell's is capable of as great a degree of precision as any modern rival, though Dines's shows a great gain in convenience by replacing the ether by water.

Chemical hygrometers, in which a given quantity of air is deprived of its aqueous vapour by means of sulphuric acid or other substance having great affinity for moisture, were conspicuous by their absence from both sections of the exhibition, though at one time they were much commended for use by meteorologists.

Of the three rain gauges exhibited, the first ("Howard's") is in a modified form, the rain gauge of the Englishman all the world over, while the other two—the "Crosley" and the "Side tube"—are fortunately dead and buried, though we hear of an occasional case of a misguided observer reverting to these archaic forms.

May we be forgiven for saying of the next class of instruments—"Anemometers"—that the whole science of anemometry is only just emerging from a state of barbarism worthy of the middle ages. But, thanks mainly to the modern apostle of anemometry, Mr. Dines, it is emerging.

The earliest anemometer in the catalogue is Lind's, "in which the force of the wind is shown by the depression and elevation of a column of water." This is the principle adopted by Mr. Dines in his latest pattern, the pressure tube anemometer. Of the remaining anemometers we would only say—*De mortuis nil nisi bonum*.

The list of 1837 instruments terminates with Herschel's actinometer, but there is no actinometer in the 1897 list. Have meteorologists given up using this instrument, or is it the fact that they never did use it?

Of the modern instruments we have little to say, they provide a delightful display of inventive genius and high-class workmanship, and make the amateur meteorologist long for unlimited cash to purchase, and time to use, the varied apparatus designed for wrestling nature's secrets from her.

The Society itself exhibited a completely equipped meteorological station, necessarily substituting green baize for grass. We noticed in front of the thermometer screen a beautifully painted footboard for the observer. Do not the instructions say that the screen should be surrounded by grass?

It would be wearisome to give even a condensed list of the exhibits, and we will content ourselves with a few which had most interest for us, freely admitting that our selection probably has little to commend it to others.

- "127. *Seismograph* as arranged by Prof. J. Milne, F.R.S., for recording earthquakes, earth-tremors, &c. *Exhibited by* L. P. CASELLA, F.R.Met.Soc."

This appealed to our mechanical taste as a well designed, well arranged, and well made piece of apparatus.

- "149. *Set of Meteorological Curves* having reference to the gale of March 3rd, 1897, comprising—

1. For Falmouth. Barograms, Thermogram, Anemograms, and Rainfall Curves.
2. For the Scilly Islands. Pressure Tube, Anemograms, and Aneroidogram.
3. For London. Aneroidogram with open scale.
4. Two Weather Charts showing the systems prevailing over the British Islands at 8 a.m. on March 3rd and 4th."

giving opportunity for a very interesting comparison of the various meteorological elements during a gale of exceptional severity.

- "156. *Photograph showing the fixing of a 70 ft. Earth Thermometer* at Col. Knight's Observatory, Harestock, Winchester."

- "138. *Case of Earth Thermometer* used at Harestock, Winchester. *Exhibited by* COL. H. S. KNIGHT, F.R.Met.Soc."

From the above, and from other information which has come to our knowledge, we believe that the problems of earth temperature have never been attacked with the same amount of thoughtful care and elaborate instrumental equipment as Col. Knight is devoting to them.

- "155. *Photographs, Drawings, and Charts, illustrating the use of Kites* for obtaining meteorological records in the free air. *Exhibited by* A. L. ROTCH, F.R.Met.Soc."

Our last entry relates to a subject which remained almost dormant during the first fifty years of the Queen's reign, but is now receiving the attention which it deserves.

We must pass over numbers of beautiful photographs, only mentioning some of frost on window panes which showed charming specimens of nature's handiwork.

Mr. W. H. Dines, F.R.Met.Soc., showed an experiment illustrating the Formation of a Tornado Cloud. A tornado, waterspout, or whirlwind is one of those phenomena which cannot be seen every day, and when it does occur, observers are too often busy in securing their property, and therefore unable to study it; but by Mr. Dines's apparatus, the verisimilitude of a small tornado can be examined at leisure.

RAINFALL AT MUSWELL HILL.

To the Editor of the Meteorological Magazine.

SIR,—The rainfall of the 7 months, Sept. 1st, 1896, to March 31st, 1897, has been so excessive, that it may be interesting to compare it with past years.

A record of R for a quarter of a century was completed there on

December 31st last; during that time, once only, just 20 years ago, has the total R for the 7 months, Sept. 1st to March 31st, exceeded that of the same period in 1896-7. In 1876-7 the aggregate for those 7 months was 24·63, being 8·09, or nearly 49 per cent. above the 25 years' average (16·54); while in 1896-7 it was 23·37, being 6·83 or 41½ per cent. above the average.

	1872-3.	1876-7	1880-1	1882-3	1885-6	1896-7	Average for 25 years.
	in.	in.	in.	in.	in.	in.	in.
Sept. ...	1·71	3·82	3·76	3·06	4·76	6·26	2·47 .. Sept.
Oct.	5·80	1·22	5·36	5·53	3·90	3·06	3·15 ... Oct.
Nov. ...	4·09	3·46	2·11	3·10	3·67	1·12	2·80 ... Nov.
Dec.	4·79	6·63	3·40	2·91	1·22	4·05	2·41 ... Dec.
Jan.	2·66	5·01	1·29	2·50	4·72	2·23	2·14 ... Jan.
Feb.	2·38	1·80	4·03	3·95	·65	3·02	1·77 ... Feb.
March ...	1·80	2·69	2·31	·91	1·73	3·63	1·80 ... March
	23·23	24·63	22·26	21·96	20·65	23·37	16·54
Excess above Average }	6·69	8·09	5·72	5·42	4·11	6·83	

During the 25 years there have been only five previous instances when the rainfall of those 7 months exceeded 20 inches, and the table appended gives the totals of each month on these occasions. In 1876-7 the excess was, in a great measure, due to the enormous amounts of December and January; while in 1896-7, September, December and March contributed most largely to the result.

Yours truly,

J. W. SCOTT.

Elleray, Etchingham Park, Finchley, N., April 3rd, 1897.

REVIEWS.

On Periodicity of Good and Bad Seasons. By H. C. RUSSELL, B.A., C.M.G., F.R.S. (Proc. R. Soc. New South Wales, June 3rd, 1896.) 8vo, 47 pages, 1 plate.

THIS paper opens with the following paragraph:—

"I feel some reluctance in coming forward to night, with the results of my investigations into the periodicity of good and bad seasons—floods and droughts if you will—because they must come to you as a surprise, and they will make a claim on your confidence, which at first sight you will probably not be disposed to grant. For myself, I know that some years ago, if anyone had come to me, stating that it was possible to forecast the seasons many years in advance, I should have received the statement with incredulity. It will not be a surprise to me therefore if you feel the same, but I hope you will give a fair hearing before coming to a conclusion, so that you may have before you the evidence that has convinced me, and you can then form your own opinions."

We can hardly describe fully the laws which Mr. Russell thinks that he has established, but broadly we should state them as follows:—

(1) A recurrence of similar weather each 19 years; (2) If representing good seasons (which seems to mean wet ones) by the letter G, and bad ones (which are droughty ones) by B, there should be a normal sequence, but his own table does not show it.

Well, our opinion is that Mr. Russell has not proved his case. We shall be delighted to be convinced that we are wrong, because the discovery of any definite rule respecting coming seasons would be a priceless boon to the human race, and—compared with it—the discomfiture of the Editor of the *Meteorological Magazine* would not be of the slightest consequence. We cannot analyze and criticize 47 pages in two. The only thing to do is to indicate what we think has unconsciously led astray so able a man as Mr. Russell.

The first and great mistake seems to be that the author has not laid down a definition of what constitutes a good or a bad season. On page 3 he mentions “a period of months or years during which little rain falls, and the country gets burnt up.” Yes, but what is “little rain,” how much “burning up” is involved. And on the very next page we read “Drought is not wholly made by a shortage of rainfall. Its most important factors are great heat and drying winds.” Here again we have an absence of definition; what is the precise meaning of “great heat,” and what is the humidity and velocity constituting a “drying wind.” These questions may seem puerile, but we believe that without sharp definitions of this kind, no two persons going independently through a 30 years meteorological register would take out droughts beginning and ending at similar times; and if this is true where we have a perfect statistical record as our basis, how much stronger does it become when we have only old chroniclers upon which to rely.

Then the diagram is novel, it goes from 1788 to 1895, and every year is “classed as good or bad, that is, having sufficient or insufficient rainfall,” and moreover—as the author tells us on the previous page—“without regard to their (*i.e.* the droughts) intensity.” This is quite new—a diagram with no such thing as an average year, though rather oddly no characters are assigned to 1855–56. We have tried to find out how the diagram has been constructed, and give the figures for the first ten years we tried:—

Years.....	1870	1871	1872	1873	1874	1875	1876	1877	1878	1879
Total R at {	64·2	52·3	37·1	73·4	63·6	46·2	45·7	59·7	49·8	63·2
Sydney ... }	+	—	—	+	+	—	—	+	—	+
Character in										
Diagram..	G	G	B	G	G	B	B	B	G	G

Roughly, the years with large totals are marked Good, those with small ones Bad; but 1877 and 1878 seem reversed. But we are not yet sure that we are on the right track, because from the diagram and from the nature of things it seems that the droughts are reckoned independently of the civil year. And if so, would two students

start with the same month? Moreover, what becomes of the multiples of the odd months in relation to the 19 years period?

Then Mr. Russell works in records of red rain, gales, cyclones, and great frosts, but at present we are inclined to wait for the strong test of futurity. Sometimes we are puzzled to know at what the author is driving; for instance, on the last two pages we read of storms and famines in Cook's Island "About 1813," "In December, 1831," "In March, 1846," and "On March 27th, 1866." We do not see the 19 year cycle in these dates— $1813-31=18$; $1831-46=15$; $1846-66=20$; moreover, we find in the diagram 1813B, 1831G, 1846B, 1866B.

However, Mr. Russell is so able, and has done such good work for New South Wales, that we hope that it is only our obtuseness which prevents our being convinced. Probably the curve of the dividends of the Colonial Banks will afford a fair commentary on the predictions which are, Good for 1897-8, 1901-2, and 1906; and Bad for 1899-1900, and 1903 to 1905.

Buletinul Observatiunilor Meteorologice din Romania de STEFAN C. HEPITES, Directorul. Anul V., 1896. Bucuresci, 4to., 1897.

WE are glad to see that Director Hepites is advancing rapidly with the organization of the meteorological service for Roumania, and that, as regards promptitude of publication, he is showing the Directors of Western Europe an example. This pamphlet contains chiefly the monthly summaries of the 34 climatological and 309 rainfall stations which he has established, but in the first place he must be congratulated on their number, and secondly upon the promptitude which has enabled him to give us the complete totals for the year—within three months of its closing. We hope that at an early date Dr. Hepites will give a map showing the position of all his stations. Meanwhile we may just mention that the rainfall during 1896 over Roumania seems to have been generally about 16 inches and the following appear to have had the greatest and least rainfall:—

	Lat.	Lon.	Altitude.	RAIN in 1896.			Days with more
				Total. in.	Depth. in.	M. in 24 hrs. Date.	
Domnesci, Muscel	45° 9' N.	24° 53' E.	1640ft.	53·78	2·96	10 vi.	84
Mangalia, Constanta...	43° 37' N.	28° 37' E.	105ft.	6·46	1·09	16 xii.	28

Annales de l'Observatoire Météorologique du Mont Blanc (Altitude 4,358 mètres = 14,298 ft.) Publiées sous la Direction de J. VALLOT, Fondateur et Directeur de l'Observatoire. Tome II avec 7 Planches et 19 Figures. 4to. Steinheil, Paris 1896.

ON a previous occasion, *Met. Mag.*, Vol. XXX (1895), pp. 9-10, we had great pleasure in calling attention to the splendid work being done by M. Vallot at great cost of money, of time, and of strength in the building, equipping and maintaining this loftiest of European

meteorological stations. We are glad to welcome the second of his valuable volumes of *Annales*, and we congratulate M. Vallot on the very fair, and yet appreciative, report upon his work made by the reporters of the *Académie des Sciences* (as they were MM. Mascart, Bouquet de la Grye and Daubrée it is not easy to see how the author could have more competent judges). The following is a free translation of the concluding sentence of their report :—

“ This short note will sufficiently show that in pursuit of his object M. Vallot has had to conquer many difficulties, sufferings and dangers. He has carried out the whole without any government assistance and entirely at his own expense. This savant deserves all credit for his energy, his perseverance and his devotion to Science.”

Reference to our previous review will show how thoroughly we agree with the above statement.

The present volume deals chiefly with barometric records, actinometric observations and the triangulations necessary for M. Vallot's survey of Mont Blanc on the scale of rather more than three inches to the mile. One paper of 24 quarto pages, devoted to difficulties of scientific observations at great altitudes, is extremely interesting. In fact it is a sort of epitome of the author's experiences, and as he tells us that he has made 22 ascents, and has on one occasion remained nine consecutive days at his lofty observatory, his experience is unique. We are sorry to infer from one expression that the severe strain produced by the climbing, the deficiency of oxygen, and the low temperature have somewhat impaired M. Vallot's health, it would have been wonderful if that were not the case, but he is as energetic as ever and promises a third volume at an early date. France may well be proud of such a worker.

Report and Results of Meteorological Observations made at Ardgillan, Co. Dublin during the year 1896, by CAPT. E. R. TAYLOR, F.R.Met.Soc. Privately printed, 4to., 1897. London. 23 pp., 1 plate. The same for 1892. 4to., 1897, 6pp.

CAPTAIN TAYLOR has in these two pamphlets given in a very clear and compact form the results of his station—so clear indeed that there is scarcely any room for criticism. If we had had a sea level pressure of 31.043 inches to record, we think that we should not have passed it over so lightly as the author has done on p. 14. It is never safe to prophecy, but judging by the past it will probably be 50 or 100 years before such a fact has to be recorded again. Then on page 3 he tells us that there are at Ardgillan two rain gauges, an 8-inch and a 5-inch, but we cannot find the result of the former, although from the pamphlet for 1892 it is evident that it, the 8-inch gauge, was the first erected.

Another welcome addition to the pamphlet for 1897 will be a view of the station showing the position of the instruments, or a scale plan of the ground such as used to be given by the Royal Meteorological Society.

The smaller pamphlet for 1892 is welcome, as it contains the results for the first year for which records exist.

CLIMATOLOGICAL TABLE FOR THE BRITISH EMPIRE, OCTOBER, 1896.

STATIONS. (Those in italics are South of the Equator.)	Absolute.				Average.				Absolute.		Total Rain.		Aver.
	Maximum.		Minimum.		Max.	Min.	Dew Point.	Humidity.	Max. in Sun.	Min. on Grass.	Depth.	Days.	
	Temp.	Date.	Temp.	Date.									
	°		°		°	°	°	0-100	°	°	inches		
England, London	62·9	8, 9	29·2	28	53·6	40·5	41·5	84	100·6	24·8	3·05	18	6·2
Malta.....	84·1	2	56·6	27	76·5	62·7	63·2	81	134·8	50·3	2·50	4	6·5
<i>Mauritius</i>	82·6	13	63·0	9	79·5	67·3	62·9	73	138·2	54·0	·54	14	5·4
Calcutta.....	91·7	5	69·4	21	88·8	73·0	69·9	69	152·5	62·0	·00	0	1·0
Bombay.....	95·0	29	76·6	31	90·2	78·7	75·7	76	141·3	63·6	·01	1	1·1
Ceylon, Colombo	89·8	29	72·0	29	86·5	74·8	74·0	84	145·0	69·0	16·78	23	7·0
<i>Melbourne</i>	89·5	28	36·9	2	68·5	47·5	47·7	70	139·5	29·0	·78	7	5·7
<i>Adelaide</i>	97·8	28	40·0	7	77·3	52·5	46·2	54	155·8	28·5	·34	7	3·8
<i>Sydney</i>	92·4	13	47·6	3	73·4	58·4	56·1	71	149·9	39·2	2·19	10	4·7
<i>Wellington</i>	65·0	26	34·0	1	58·9	46·9	42·5	68	130·0	27·0	3·18	16	4·3
<i>Auckland</i>	67·5	31	40·0	10	62·2	48·9	45·8	71	137·0	35·0	1·93	20	5·0
Jamaica, Kingston.....	92·8	21	71·3	23	89·7	74·1	...	...	...	...	·97	5	...
Trinidad	88·8	...	72·1	...	...	...	74·3	81	...	...	6·05	...	...
Grenada.....	88·4	19	72·0	14a	85·0	75·4	71·0	75	158·0	...	4·14	14	3·0
Toronto	66·8	29	27·8	26	52·4	37·4	38·1	75	83·0	23·0	2·16	11	6·3
New Brunswick, Fredericton	66·7	1	25·4	11	52·0	35·9	37·7	80	...	...	5·15	13	7·2
Manitoba, Winnipeg } British Columbia, } Esquimalt.....	73·6	2	13·4	21	48·7	26·4	...	...	...	...	1·01	7	6·2
	65·5	15	35·2	27	56·1	42·5	46·0	92	...	...	2·87	12	6·2

a—and 26.

REMARKS.

MALTA.—Adopted mean temp. $69^{\circ}\cdot 1$, or $0^{\circ}\cdot 4$ below the average. Mean hourly velocity of wind 8·0 miles. Average temp. of sea $73^{\circ}\cdot 5$. Thunderstorms on 1st, 2nd, 3rd and 5th. Lightning on 5 days; hail on 3rd. J. F. DOBSON.

Mauritius.—Mean temp. of air $0^{\circ}\cdot 8$ above, of dew point $1^{\circ}\cdot 1$ above, and rainfall 1·09 in. below, their respective averages. Mean hourly velocity of wind 9·8 miles, or 1·4 below average; extremes, $20^{\circ}\cdot 2$ on 4th and 29th, and $2^{\circ}\cdot 0$ on 9th; prevailing direction, E.S.E. The driest October on record, with the exception of 1878. T. F. CLAXTON.

CEYLON, COLOMBO.—Thunderstorms occurred on 14 days; lightning was seen on the 29th. F. W. GRIMLINTON.

Adelaide.—Mean temp. $2^{\circ}\cdot 9$ above the average of 39 years. Another very dry month, the total fall being 1·52 in. below the average for 39 years, and the least but one on record for this month. C. TODD, F.R.S.

Sydney.—Rainfall ·67 in. below, temperature $2^{\circ}\cdot 4$ above and humidity $1^{\circ}\cdot 6$ above, their respective averages. H. C. RUSSELL, F.R.S.

Wellington.—Showery in the early part of the month, wind chiefly S.E.; the middle of the month generally fine. On night of 23rd severe thunder and rain storm from N.W., causing damage; 1·20 in. of rain falling between 7 and 8 p.m. The remainder of the month unsettled. Prevailing wind N.W., frequently strong. Hail on 2nd. Mean temp. $0^{\circ}\cdot 7$ below, and rainfall 1·19 in. below, their respective averages. R. B. GORE.

Auckland.—A cold and windy month, with an unusual predominance of S.W. winds. Mean temperature and rainfall considerably below the average. T. F. CHEESEMAN.

JAMAICA.—Mean hourly velocity of wind 2·8 miles. Kingston rainfall one-eighth of the average. Island rainfall eleven per cent. below the average. R. JOHNSTONE.

SUPPLEMENTARY TABLE OF RAINFALL,
MARCH, 1897.

[For the Counties, Latitudes, and Longitudes of most of these Stations,
see *Met. Mag.*, Vol. XIV., pp. 10 & 11.]

Div.	STATION.	Total Rain.	Div.	STATION.	Total Rain.
		in.			in.
I.	Uxbridge (Harefield Pk.)	3.41	XI.	Rhayader, Nantgwillt ...	7.92
II.	Dorking, Abinger Hall.	5.66		Lake Vyrnwy	8.11
,,	Birchington, Thor	3.10	,,	Corwen, Rhug	...
,,	Hailsham	4.51	,,	Criceith, Talarvor.....	3.66
,,	Ryde, Thornbrough	5.20	,,	I. of Man, Douglas	4.81
,,	Emsworth, Redlands ...	4.16	XII.	Stoneykirk, Ardwell Ho.	4.86
,,	Alton, Ashdell	6.04	,,	New Galloway, Glenlee	8.57
III.	Oxford, Magdalen Col..	2.59	,,	Lilliesleaf, Riddell	3.72
,,	Banbury, Bloxham	4.04	XIII.	N. Esk Res. [Penicuik]	4.75
,,	Northampton, Sedgbrook	3.67	,,	Edinburgh, Blacket Pl..	2.87
,,	Duddington [Stamford].	2.91	XIV.	Glasgow, Queen's Park..	4.05
,,	Alconbury	1.84	XV.	Inverary, Newtown	7.96
,,	Wisbech, Bank House...	2.12	,,	Oban, The Corran	7.88
IV.	Southend	3.19	,,	Islay, Gruinart School...	1.97
,,	Harlow, Sheering.....	3.74	XVI.	Dollar.....	5.47
,,	Colchester, Lexden	2.97	,,	Balquhider, Stronvar...	11.12
,,	Rendlesham Hall	2.00	,,	Ballinluig	5.85
,,	Rushall Vicarage	2.66	,,	Dalnaspidal H.R.S.....	9.70
,,	Swaffham	2.76	XVII.	Keith H.R.S.....	4.13
V.	Salisbury, Alderbury ...	4.82	,,	Forres H.R.S.	1.41
,,	Bishop's Cannings	4.06	XVIII.	Fearn, Lower Pitkerrie..	1.97
,,	Blandford, Whatcombe.	5.51	,,	N. Uist, Loch Maddy ...	6.16
,,	Ashburton, Holne Vic...	7.08	,,	Invergarry	5.29
,,	Okehampton, Oaklands.	5.57	,,	Aviemore H.R.S.	2.12
,,	Hartland Abbey	4.89	,,	Loch Ness, Drumnadrochit	2.65
,,	Lynmouth, Glenthorne.	6.52	XIX.	Invershin	5.34
,,	Probus, Lamellyn	4.48	,,	Scourie	3.90
,,	Wellington, The Avenue	5.01	,,	Watten H.R.S.....	2.63
,,	Wincanton.....	4.17	XX.	Dunmanway, Coolkelure	11.29
VI.	Clifton, Pembroke Road	4.20	,,	Cork, Wellesley Terrace	5.57
,,	Ross, The Graig	3.81	,,	Killarney, Woodlawn ...	7.40
,,	Wem, Clive Vicarage ...	2.63	,,	Caher, Duneske	5.52
,,	Cheadle, The Heath Ho.	2.77	,,	Ballingarry, Hazelfort...	5.00
,,	Worcester, Diglis Lock	3.11	,,	Limerick, Kilcornan ...	4.49
,,	Coventry, Kingswood ...	3.09	,,	Broadford, Hurdlestown	...
VII.	Grantham, Stainby	2.49	,,	Miltown Malbay	6.45
,,	Horncastle, Bucknall ...	2.07	XXI.	Gorey, Courtown House	4.59
,,	Worksop, Hodsck Priory	2.44	,,	Athlone, Twyford	4.91
,,	Neston, Hinderton	2.01	,,	Mullingar, Belvedere ...	4.22
VIII.	Southport, Hesketh Park	2.84	,,	Longford, Currygrane...	3.76
,,	Broughton-in-Furness ...	7.64	XXII.	Woodlawn	5.34
IX.	Ripon, Mickley.....	4.66	,,	Crossmolina, Enniscoe ..	8.03
,,	Melmerby, Baldersby ...	3.01	,,	Collooney, Markree Obs.	6.60
,,	Scarborough, Observat'y	2.66	,,	Ballinamore, Lawderdale	6.39
,,	Middleton, Mickleton ...	5.66	XXIII.	Lough Sheelin, Arley...	...
X.	Haltwhistle, Unthank...	5.53	,,	Warrenpoint.....	5.74
,,	Bamburgh	3.04	,,	Seaforde.....	4.73
,,	Keswick, The Bank	8.02	,,	Belfast, Springfield	5.65
XI.	Llanfrechfa Grange	5.58	,,	Bushmills, Dundarave..	4.19
,,	Llandovery	6.89	,,	Stewartstown	4.15
,,	Castle Malgwyn	6.13	,,	Killybegs	9.70
,,	Builth, Abergwesyn Vic.	9.25	,,	Lough Swilly, Carrablagh	7.02

MARCH, 1897.

Div.	STATIONS. [The Roman numerals denote the division of the Annual Tables to which each station belongs.]	RAINFALL.					Days on which ·01 or more fell.	TEMPERATURE.				No. of Nights below 32°.	
		Total Fall.	Differ- ence from average 1880-9.	Greatest Fall in 24 hours		Max.		Min.		In shade.	On grass		
				Dpth	Date			Deg.	Date			Deg.	Date.
		inches.	inches.	in.				Deg.	Date	Deg.	Date.		
I.	London (Camden Square) ...	3.42	+ 1.81	.49	2	17	61.7	23	26.8	30	3	14	
II.	Maidstone (Hunton Court) ...	...	...	...	...	...	...	...	...	...	...	...	
III.	Strathfieldsaye	4.65	...	.57	2	21	...	...	...	...	...	...	
IV.	Hitchin	4.13	+ 2.79	.65	2	19	61.0	21	26.0	29	6	...	
V.	Winslow (Addington)	2.97	+ 1.25	.66	17	19	65.0	21	24.0	30	7	11	
VI.	Bury St. Edmunds (Westley) ...	2.73	+ 1.18	.59	2	15	61.0	22	31.0	30	...	...	
VII.	Norwich (Brundall)	2.33	...	.46	2	17	62.0	21	27.8	13	5	12	
VIII.	Weymouth (Langton Herring) ...	4.51	+ 2.61	.76	2	21	57.0	31	33.0	30	0	...	
IX.	Torquay (Cary Green)	5.89	...	1.52	2	18	58.6	19b	35.0	5, 30	0	5	
X.	Polapit Tamar [Launceston]..	3.89	+ 1.36	.59	2	22	58.1	27	29.9	30	2	4	
XI.	Stroud (Upfield)	3.60	+ 1.41	.77	2	20	67.0	26	31.0	7, 29	2	...	
XII.	Church Stretton (Woolstaston) ...	3.76	+ 1.63	.51	17	24	57.0	22c	29.0	30	9	20	
XIII.	Tenbury (Orleton)	3.44	+ 1.36	.72	2	21	63.8	21	24.0	30	5	10	
XIV.	Leicester (Barkby)	2.10	+ .39	.46	14	21	64.0	21	22.0	29	10	19	
XV.	Boston	1.82	+ .28	.36	14	17	60.0	21	28.0	13	6	...	
XVI.	Hesley Hall (Tickhill).....	2.47	+ .57	.50	2	20	61.0	21	25.0	30	6	...	
XVII.	Manchester (Plymouth Grove) ...	2.61	+ .39	.40	3	20	62.0	22	27.0	30	3	7	
XVIII.	Wetherby (Ribston Hall) ...	...	...	...	...	...	...	...	...	...	...	...	
XIX.	Skipton (Arncliffe)	9.89	+ 4.79	1.42	4	24	...	...	...	...	...	...	
XX.	Hull (Pearson Park) ...	2.93	+ .88	.40	2	18	59.0	21	21.0	30	9	10	
XXI.	Newcastle (Town Moor)	2.96	+ .33	.38	14	19	...	...	...	...	...	...	
XXII.	Borrowdale (Seathwaite).....	19.99	+ 9.49	1.91	2	28	...	...	...	...	...	...	
XXIII.	Cardiff (Ely)	4.39	+ 1.41	.66	2	24	...	...	...	...	...	...	
XXIV.	Haverfordwest	5.75	+ 2.51	1.02	2	26	55.1	25	28.1	30	2	9	
XXV.	Aberystwith (Gogerddan) ...	5.46	+ 2.48	1.46	2	21	61.0	23	...	...	...	...	
XXVI.	Llandudno	2.92	+ .84	.46	12	19	62.0	22	34.5	8	0	...	
XXVII.	Cargen [Dumfries]	5.91	+ 2.61	.86	2	22	56.0	23	23.4	30	6	...	
XXVIII.	Jedburgh (Sunnyside)	...	...	...	...	...	...	...	...	...	...	...	
XXIX.	Colmonell	6.32	...	.62	3	24	59.0	21	21.0	31	...	...	
XXX.	Lochgilthead (Kilmory).....	6.11	+ 1.65	.70	22	27	...	...	21.0	30	10	...	
XXXI.	Mull (Quinish)	7.55	+ 3.71	.96	22	22	...	...	...	...	...	...	
XXXII.	Loch Leven Sluices	5.50	+ 2.53	1.00	23	20	...	...	...	...	...	...	
XXXIII.	Dundee (Eastern Necropolis) ...	3.60	+ 1.20	.65	15	25	58.0	24	25.7	30	8	...	
XXXIV.	Braemar	5.92	+ 3.28	.94	13a	26	51.8	24	18.6	3	14	22	
XXXV.	Aberdeen (Cranford) ...	3.91	...	.60	13	26	58.0	24c	24.0	28	8	...	
XXXVI.	Cawdor (Budgate)	1.89	— .15	.29	22	25	...	...	...	...	...	...	
XXXVII.	Strathconan [Beaully]	6.18	+ 1.86	.68	17	15	...	...	...	...	...	...	
XXXVIII.	Glencarron Lodge	7.40	...	1.00	18	30	52.1	22	20.6	31	13	...	
XXXIX.	Dunrobin	3.68	+ 1.43	.53	22	25	54.0	24	26.0	30	6	...	
XL.	S. Ronaldsay (Roeberry).....	4.01	+ 1.47	.55	26	28	50.0	21	26.0	29e	12	...	
XLI.	Darrynane Abbey	6.40	...	.77	27	26	...	...	...	...	...	...	
XLII.	Waterford (Brook Lodge) ...	5.91	+ 3.01	1.12	11	23	58.5	24	29.0	30	3	...	
XLIII.	O'Briensbridge (Ross)	4.80	...	.94	11	20	...	...	...	...	...	...	
XLIV.	Carlow (Browne's Hill)	4.75	+ 2.38	.98	2	22	...	...	...	...	...	...	
XLV.	Dublin (Fitz William Square) ...	2.98	+ .97	.74	11	24	61.6	21	29.0	30	1	9	
XLVI.	Ballinasloe	4.75	+ 2.12	.79	11	28	58.0	22	30.0	30	7	...	
XLVII.	Clifden (Kylemore)	10.68	...	1.09	2	26	...	...	...	...	...	...	
XLVIII.	Waringstown	5.38	+ 3.03	.78	27	26	59.0	24d	21.0	29	11	17	
XLIX.	Londonderry (Creggan Res.) ..	5.05	+ 2.32	.99	4	27	...	...	...	...	...	...	
L.	Omagh (Edenfel)	5.44	+ 2.93	.70	11	26	56.0	21	24.0	29	7	17	

+ Shows that the fall was above the average ; — that it was below it.

a—and 15. b—and 24. c—and 26. d—and 25. e—and 30.

METEOROLOGICAL NOTES ON MARCH, 1897.

ABBREVIATIONS.—Bar. for Barometer; Ther. for Thermometer; Max. for Maximum; Min. for Minimum; T for Thunder; L for Lightning; TS for Thunderstorm; R for Rain; H for Hail S for Snow.

ENGLAND.

HITCHIN.—The wettest March in our record, which began in 1850, excepting 1864, when 4·14 in. of R fell.

ADDINGTON.—A month of very unsettled weather, with frequent very high winds. Thunder was heard on the 10th, 15th and 17th; on the 15th there was a rainbow at 7 a.m., and again at 4 p.m.; on the 17th there was much L at night. The morning of the 30th was very cold, the shade temp. falling to 24°. Brook overflowing on 3rd. Only twice during 27 years has the rainfall been exceeded in March—to wit, 1876, 3·60 in., and 1888, 2·99 in.

BURY ST. EDMUNDS, WESTLEY.—A mild month, with high winds. Vegetation very forward. TS, with H, on 4th; S and R on 31st.

NORWICH, BRUNDALL.—A windy, but mild month. Mean temp. 44°·9, constituting the fifth March in succession with temp. higher than the average. Between the 17th and 28th the thermometer did not once fall to 40°, and on two nights the min. was as high as 47°. R of month 61 in. above average. T on 4th and 18th. Squally, with H, on 1st; gales on 3rd and 19th.

WEYMOUTH, LANGTON HERRING.—The previous heaviest rainfall in March in 23 years was in 1891, 3·58 in., which is 93 in. less than that of the present month. For the first three months of this year the rainfall is 4·05 in. in excess of the average, and is 56 in. more than in the next highest. The average temp. at 9 a.m., 44°·4, is 2°·7 above the average of 26 years. Between 8 and 9 a.m. on the 3rd occurred the most destructive storm remembered here; trees were uprooted in all directions, and slates and tiles blown off in great numbers. A severe TS occurred on the evening of the 17th. Solar halos were seen on the 2nd, 9th and 27th; and lunar halos on the 12th and 13th. Constant fogs from 20th to 25th.

TORQUAY, CARY GREEN.—Rainfall 3·47 in. above the average. Mean temp. 46°·7, or 2°·8 above the average. Duration of sunshine 136 hours 50 minutes, being 8 hours 30 minutes below the average. No absolutely sunless day.

POLAPIT TAMAR [LAUNCESTON].—A wet month. The first half of the month was cold and stormy. The average shade temp. rather less than that of February. T, L and H on 4th; T and H on 16th; and T on 17th. S.W. gale on 2nd.

STROUD, UPFIELD.—S.W. gale on night of 2nd, and N.W. gale all day on 3rd, with S and sleet; and S.W. gale on 4th. T and H on 10th. S.W. gale on 11th. Sharp TS at 7.30 p.m. on 17th. S.W. gales on 26th and 28th. S on the hills on 31st.

WOOLSTASTON.—A cold, wet, and stormy month. Heavy gales, with S storms, on 2nd, 3rd, and 11th. S on the 30th and 31st. Mean temp. 42°·8.

TENBURY, ORLETON.—A warm, wet month; in fact, the wettest March since 1867. All vegetation very forward, but severe frost on the 30th checked it considerably. T and L on the evening of the 17th.

LEICESTER, BARKBY.—A month of great barometrical fluctuations and very high winds, even for March; almost all "Lion" and no "Lamb." Mean temp. 44°·4. Thunder on 10th and 17th. S on 31st.

ARNCLIFFE VICARAGE.—Very wet, with much wind, and less S than usual.

HULL, PEARSON PARK.—TS on 4th; squally, with H, on 16th. T on 18th. Squally, with H showers, on 26th.

WALES.

HAVERFORDWEST.—I cannot find a record of a wetter March than this since the commencement of observations in 1849. It commenced with very stormy

weather and low temp. A gale of great energy, after a day of storm and heavy rain, sprang up at 0.30 a.m. on the 3rd, accompanied by H and S showers; some squalls being of exceptional violence, especially one at 6.30 a.m., and several large trees were uprooted. Prevailing winds were from S., S.W., W., and N.W. The month ended as it began, stormy. Vegetation very forward.

ABERYSTWITH, GOGERDDAN.—Very stormy throughout the month. Snow-storms on the 2nd and 3rd, with strong wind from S.W.

SCOTLAND.

CARGEN [DUMFRIES].—Absence of sunshine, Easterly winds, and almost incessant rainfall combined to make the month the most unpleasant on record. Barometrical pressure only on one day (7th) exceeded 30 inches, and, with the exception of the mean reading in 1862, is the lowest recorded in March at this station. The temp. has been 1° above the average, but never have there been more wet days, while the total rainfall has only once (in 1868, when the exceptional figure 8.14 in. was registered) been exceeded. S fell almost continuously during the afternoon and night of 30th. A severe gale blew from S. on 22nd. The number of hours of sunshine recorded has only once been smaller. Farm work was very much retarded.

COLMONELL.—Rainfall 2.99 in. above, and mean temp. $2^{\circ}1$ above the average of 20 years. H shower on 1st; soft S on 3rd; S, sleet, and H on 4th.

BRAEMAR.—The old saying in March, "In like a Lion and out like a Lamb," was falsified this year. It may be said here, In like an angry Lion, and out like a fierce Lion. Roaring winds, with snow and drift.

ABERDEEN, CRANFORD.—The month was very cold, with high winds.

S. RONALDSAY, ROEBERRY.—A very cold, wet month. Mean temp. of the month, $38^{\circ}8$.

IRELAND.

DARRYNANE ABBEY.—The first half very wild and cold; the second half mild but stormy. The wettest March registered. H showers on 2nd, 3rd and 4th.

-WATERFORD, BROOK LODGE.—A very wild and wet month. The wettest March for about 50 years. H on 1st, 4th, 10th and 15th. S showers on 3rd, 10th and 12th. L on 4th, 5th and 17th. Thick fog on 19th, 20th, 21st, 22nd, 23rd and 25th. Gale from S.W. on 26th. Water in screen frozen on 29th.

O'BRIENSBRIDGE, ROSS.—This was the third bad March in succession, and the worst of the three.

DUBLIN.—Like March, 1896, this was a changeable, wild, and rainy month. During the first half temp. was low. A warm spell followed, but temp. again fell briskly on the 28th, and the month closed cold and ungenial. Compared with February, the mean temp. showed a falling off of one degree. Notwithstanding, the progress of vegetation was very rapid, and on the last day the trees presented quite a vernal appearance. Mean temp., $45^{\circ}2$, $2^{\circ}1$ above the average. Foggy on two days. High winds were noted on 20 days, reaching the force of a gale on 9. S or sleet occurred on 6 days, and H on 7 days. Solar halos on 5 days. Lunar halos on 3 days. T on the 17th. L on the 1st and 3rd.

WARINGSTOWN.—Unusually wet. Spring rather early, but labour backward.

OMAGH, EDENFEL.—A month of almost continuous gales and rain, the total fall exceeding by .97 in. the next wettest March (1868) since the records commenced in 1865. As a result the saturation of the soil prevented spring sowings of all kinds, and farm labour is backward almost beyond precedent. Temp., however, was sufficiently high to promote considerable vegetation, especially in trees, until checked by the sharp frosts of the last week.